This listing of claims will replace all prior versions and listings of claims in this application:

b.) Listing of Claims

What is claimed is:

1. (Currently Amended) A method for separating detection channels, comprising the steps of:

providing a sample ~~which is equipped~~ with at least two fluorescent dyes;

exciting ~~ascertaining an emission spectrum of the~~ at least two fluorescent dyes~~, wherein the sample being excitable~~ with light of different wavelengths, ~~and~~ wherein ~~the~~ a number of different wavelengths ~~is~~ does not exceed ~~exceeding~~ the number of fluorescent dyes ~~provided~~ in the sample, and obtaining an emission spectrum of the sample;

determining wavelength separation points of the emission spectrum ~~in terms of wavelength,~~ in order to allocate ~~the~~ a corresponding portion of the emission spectrum to a ~~specific~~ corresponding detection channel ~~in each case and to sense it with that channel~~; and

adjusting ~~the~~ separation ~~of~~ between ~~the~~ at least two detection channels in such a way that ~~the~~ different portions of the ~~entire~~ emission spectrum ~~ascertained on the basis of~~ between the wavelength separation points are ~~conveyed respectively to~~ detected by different detection channels ~~for detection~~, wherein the separation points between the portions of the emission spectrum are determined by minimizing an integral of a square of a difference between an emission spectrum of one fluorescent dye present in the sample and measured emission spectra of at least two dyes present in the sample.

2. (Currently Amended) The method as defined in Claim 1, wherein the wavelength separation points of the portions of the emission spectrum are defined by ~~the~~ intersection points of the individual spectra of each fluorescent dye ~~provided~~ in the sample.

3. (Canceled)

4. (Canceled)

5. (Currently Amended) The method as defined in Claim 1, wherein detection ~~of the one respective~~ in the corresponding detection channel is performed with at least one detector element.

6. (Original) The method as defined in Claim 5, wherein the detector element comprises several detector elements grouped together.

7. (Original) The method as defined in Claim 6, wherein signals of several detectors of a multi-anode photomultiplier are grouped together into one channel.

8. (Original) The method as defined in Claim 5, wherein the at least one detector element is a photomultiplier.

9. (Currently Amended) The method as defined in Claim 1, wherein ~~a selection means is provided for~~ adjusting the separation between ~~of the~~ at least two channels is done by a selection means.

10. (Original) The method as defined in Claim 9, wherein the selection means is a micromirror array.

11. (Currently Amended) The method as defined in Claim 9, wherein the selection means is ~~an SP~~ a spectral photometer (SP) module.

12. (Currently Amended) The method as defined in Claim 11, wherein the SP module ~~encompasses~~ comprises a mirror stop arrangement ~~with which, on the basis of the ascertained separation points, the mirror stop arrangement is~~ adjusted in such a way that each of the wavelength regions defined by the wavelength separation points is allocated, respectively, to one individual detection channel.

13. (Currently Amended) The method as defined in Claim 1, wherein the wavelength separation points are ~~ascertained~~ determined by ~~means of~~ a computer system.

14. (Currently Amended) The method as defined in Claim 13, wherein the data corresponding to ~~of~~ the ~~ascertained~~ wavelength separation points are presented to ~~the~~ a user on a display.

15. (Original) The method as defined in Claim 14, wherein the user adjusts the mirror stop arrangement on the basis of the data presented on the display.

16. (Currently Amended) The method as defined in Claim 13, further comprising automatically adjusting ~~wherein~~ the mirror stop arrangement or the micromirror array is automatically adjusted, ~~on the basis of the separation points ascertained by the computer system,~~ in such a way that each ~~the~~ wavelength region ~~regions determined~~ defined by the wavelength separation points ~~are each~~ is allocated to ~~one~~ its respective detection channel.

17. (New) A method for separating detection channels, comprising the steps of:

providing a sample with at least two fluorescent dyes;

exciting at least two fluorescent dyes with light of different wavelengths, wherein a number of different wavelengths does not exceed the number of fluorescent dyes in the sample, and obtaining an emission spectrum of the sample;

determining wavelength separation points of the emission spectrum in order to allocate a corresponding portion of the emission spectrum to a corresponding detection channel; and

adjusting by a selection means in the form of a micromirror array separation between at least two detection channels in such a way that different portions of the emission spectrum between the wavelength separation points are detected by different detection channels;